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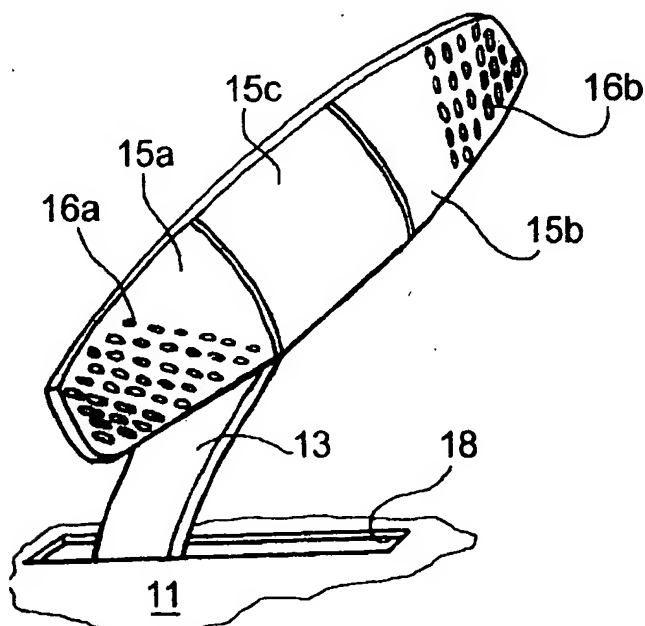
(54) **An accelerator and brake pedal device for a motor vehicle**

(57) A pedal device for controlling the accelerator and the brake of a motor vehicle includes:

- a structure (10) which is fixed in use and has a surface (15) facing the driver;
- first and second electric pressure sensors (16a, 16b) arranged in respective opposite end regions

(15a, 15b) of the surface (15) for controlling the accelerator and the brakes respectively, operable to transmit electric signals indicating a pressure that has been exerted on them; and

- an intermediate area (15c) which serves as a foot-rest and separates the end regions (15a, 15b).



**Fig.2**

## Description

**[0001]** The present invention relates to a pedal device for controlling the accelerator and the brakes of a motor vehicle.

**[0002]** It is known that conventional pedal devices for controlling a vehicle's accelerator and brakes generally include a plurality of separate movable pedals, each of which controls a respective function, either accelerating or braking the vehicle.

**[0003]** The object of the present invention is to provide a structurally simplified pedal device which is economical to manufacture and which does not require the driver's foot to move in order to operate the desired function.

**[0004]** This object is achieved, according to the invention, by providing a pedal device having the characteristics defined in Claim 1. Preferred characteristics of the invention are claimed in the dependent Claims.

**[0005]** Characteristics and advantages of the invention will become apparent from the detailed description of one embodiment thereof, provided with reference to the drawings, given by way of non-limitative example, in which:

Figure 1 is a longitudinally sectioned schematic view of a motor vehicle fitted with a pedal according to the invention; and

Figure 2 is a schematic perspective view of a pedal according to the invention.

**[0006]** With reference first to Figure 1, a pedal device according to the invention, generally indicated 10, projects from the floor 11 of a motor vehicle 12.

**[0007]** The pedal device 10 includes an essentially vertical support element 13, with a transversely elongate plate element 14 fixed to the top thereof.

**[0008]** As used here, the terms "transverse" and "longitudinal" should be considered with reference to the longitudinal axis of the vehicle, unless otherwise specified.

**[0009]** With reference also to Figure 2, the plate 14 has a surface generally indicated 15 which faces the driver.

**[0010]** The surface 15 is divided into three areas aligned transverse the vehicle:

- a first end area 15a, bearing a plurality of electric pressure sensors 16a for controlling braking;
- a second end area 15b bearing a second plurality of electric pressure sensors 16b for controlling the accelerator; and
- an intermediate surface area 15c with no sensors, which serves as a footrest and separates the two sensor-fitted areas 15a, 15b.

**[0011]** The electric sensors 16a, 16b are electrically connected to one or more electronic control units (not shown) for selectively activating the respective braking

and acceleration functions. The sensors, which are of a type known per se, are operable to transmit electrical signals indicating that pressure has been exerted on one of them, in order to activate the required function with an intensity substantially proportional to the pressure exerted on the sensor.

**[0012]** The sensors could be of various types known in the art: a piezo-resistive, inductive or capacitive type, for example.

**[0013]** The device 10 is fixed in use; however, in a preferred embodiment, the structure 10 has adjustment means for adjusting the working position of the pedal longitudinally. These adjustment means, which are not described in detail here, are schematically indicated 17 in Figure 1 and are fitted beneath the floor 11 of the vehicle 12. By acting on the longitudinal adjustment means 17, for example by means of controls (not illustrated) inside the driving compartment, the driver is able to move the pedal 10 backwards or forwards according to his height and preferred driving position.

**[0014]** In the embodiment illustrated in Figure 2, the vertical support 13 of the pedal device can slide in a longitudinal slot 18 in the floor of the vehicle.

**[0015]** Naturally, the principle of the invention remaining unchanged, embodiments and manufacturing details may be varied widely from those described and illustrated purely by way of non-limitative example, without departing thereby from the scope of the invention. For example, the pedal 10 could be fixed to the floor of the vehicle or, alternatively, in a case where longitudinal adjustment means are provided, these could be incorporated into the floor or mounted on the upper surface thereof, preferably in a position which would not get in the way of the driver's legs.

## Claims

1. A pedal device for controlling the accelerator and the brakes of a motor vehicle, **characterised in that** it includes:

- a structure (10), which is fixed in use, having a surface (15) facing the driver;
- first and second electric pressure sensors (16a, 16b), arranged at least in respective opposite end regions (15a, 15b) of the said surface (15) for controlling the accelerator and the brakes respectively, operable to transmit electric signals indicative of the pressure exerted thereon; and
- an intermediate area (15c) serving as a footrest and separating the said end regions (15a, 15b).

2. A pedal device according to Claim 1, **characterised in that** the said surface (15) is elongate along a substantially transverse direction.

3. A pedal device according to Claim 1, **characterised in that** adjustment means (17) are associated with the said structure (10), operable to vary the working position of the pedal along a substantially longitudinal direction. 5
4. A pedal device according to Claim 3, **characterised in that** the said adjustment means (17) are fitted under the floor (11) of the vehicle. 10
5. A pedal device according to Claim 4, **characterised in that** the said structure (10) also includes a substantially vertical support element (13) which is movable longitudinally along a longitudinal slot (18) in the floor (11) of the vehicle (12) as a result of activation of the adjustment means (17). 15

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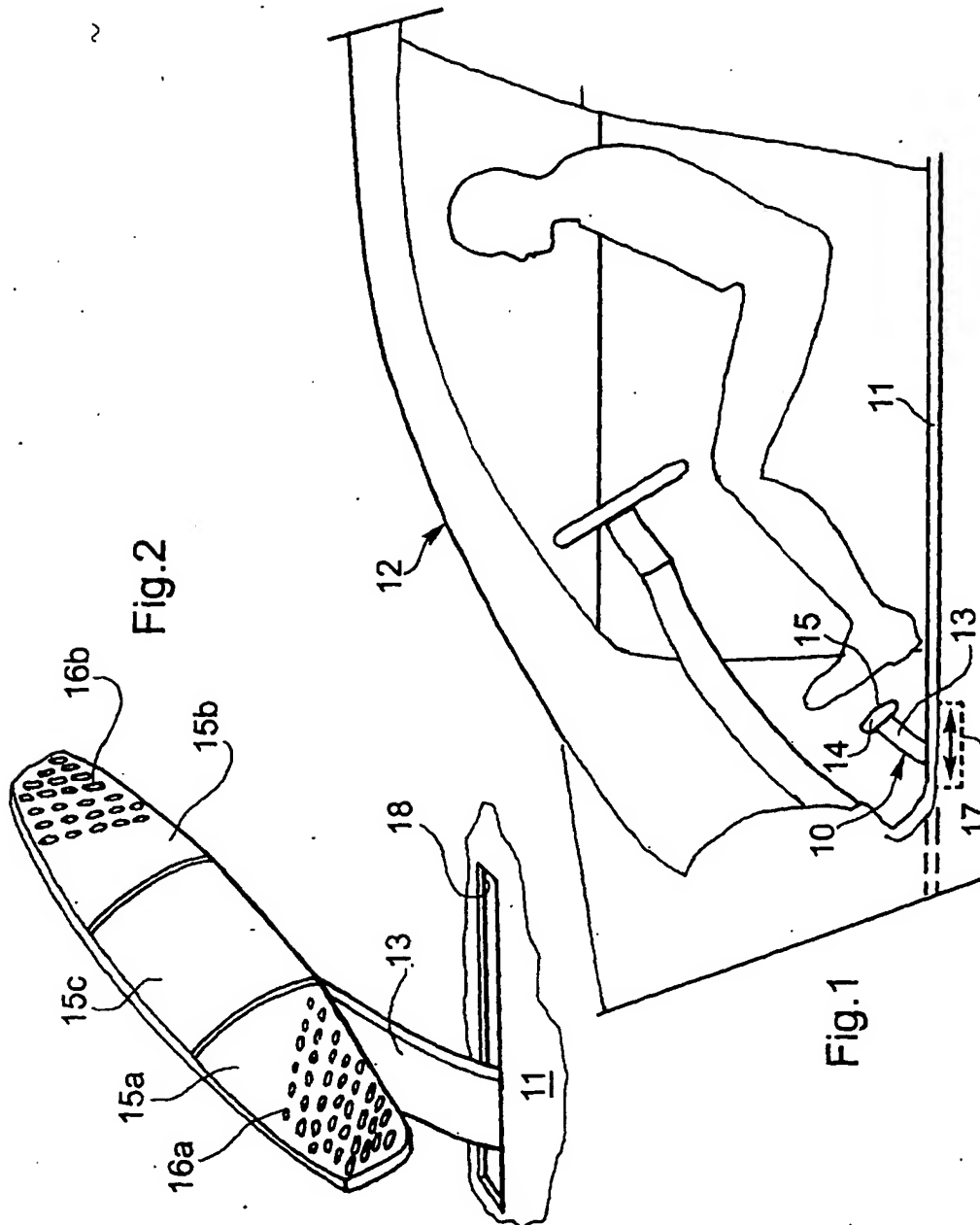
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European Patent  
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# EUROPEAN SEARCH REPORT

Application Number  
EP 01 10 7575

| DOCUMENTS CONSIDERED TO BE RELEVANT   |  |  |   |
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| Category  | Citation of document with indication, where appropriate, of relevant passages  | Relevant to claim                                      | CLASSIFICATION OF THE APPLICATION (Int.Cl.7)            |
| A   | DE 198 11 268 A (LOB HELKE)<br>16 September 1999 (1999-09-16)<br>* abstract *<br>* figures 1-6 *   | 1  | G0561/14<br>B60T7/06                                    |
| A   | US 5 115 162 A (LEONARD MARK L ET AL)<br>19 May 1992 (1992-05-19)<br>* abstract *<br>* figures 1-7 *   | 1  |   |
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| A   | US 2 860 720 A (J.V.HUFF ET AL)<br>18 November 1958 (1958-11-18)<br>* column 2, line 14 - column 3, line 49 *<br>* figures 1-4 *<br>* claims 5,6 * | 2,3  | TECHNICAL FIELDS<br>SEARCHED (Int.Cl.7)<br>G056<br>B60T |
| The present search report has been drawn up for all claims  |  |  |   |
| Place of search<br><b>THE HAGUE</b>   |  | Date of completion of the search<br><b>14 May 2001</b> | Examiner<br><b>Vermander, W</b>                         |
| <p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone<br/>Y : particularly relevant if combined with another document of the same category<br/>A : technological background<br/>O : non-written disclosure<br/>P : intermediate document</p> <p>T : theory or principle underlying the invention<br/>E : earlier patent document, but published on, or after the filing date<br/>D : document cited in the application<br/>L : document cited for other reasons<br/>&amp; : member of the same patent family, corresponding document</p> |  |  |   |

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**ANNEX TO THE EUROPEAN SEARCH REPORT  
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EP 01 10 7575

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14-05-2001

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82